Claims

1. A unit fuel injector for an internal combustion engine, with a pump element (2), the pump element (2) having a pump chamber (9), and with a magnet valve (5), the magnet valve (5) having a valve member (21) and an armature (41), and the magnet valve (5) opening or closing a hydraulic connection (11) between the pump chamber (9) and a low-pressure region (12), characterized in that the armature (41) is fixedly connected to the valve member (21).

2. The unit fuel injector as defined by claim 1, characterized in that a receiving mandrel (43) is embodied on the valve member (21); and that the armature (41) is fixedly connected to the receiving mandrel (43).

3. The unit fuel injector as defined by one of the foregoing claims, characterized in that the armature (41) is connected to the receiving mandrel (43) by nonpositive engagement, in particular by pressing.

4. The unit fuel injector as defined by claim 3, characterized in that a sealing face (23) and a stroke stop (55) are embodied on the valve member (21); and that the maximum stroke (h) of the valve member (21) is defined by the spacing in the axial direction between the sealing face (23) and the stroke stop (55).

5. The unit fuel injector as defined by claim 2, characterized in that the sealing face (23) is embodied frustoconically.

6. The unit fuel injector as defined by one of the foregoing claims, characterized in that a magnet plate (45) cooperating with a coil (37) of the magnet valve (5) is provided between the armature (41) and the stroke stop (55); and that the receiving mandrel (43) of the valve member (21) protrudes through a bore (53) in the magnet plate (45).

7. The unit fuel injector as defined by claim 6, characterized in that a spacer plate (57) is provided between the stroke stop (55) and the magnet plate (45); and that the receiving mandrel (43) of the valve member (21) protrudes through a hole (59) in the spacer plate (57).

8. The unit fuel injector as defined by one of the foregoing claims, characterized in that the armature (41) is embodied in encapsulated form, so that fuel located in the magnet valve (5) cannot reach the coil (37) surrounding the armature (41).

9. The unit fuel injector as defined by claims 7 and 8, characterized in that a capsule (49) surrounding the armature (41) is provided; that a spacer ring (47) of a nonmagnetic material, in particular stainless steel, is provided between the capsule (49) and the magnet plate (45); and that the capsule (49), spacer ring (47), and magnet plate (45) are connected in sealing fashion to one another.

10. The unit fuel injector as defined by claim 9, characterized in that the capsule (49), spacer ring (47) and magnet plate (45) are welded or soldered to one another.

11. The unit fuel injector as defined by one of the foregoing claims, characterized in that the valve member (21) is guided at at least one point (27, 29) in a housing (17).

12. The unit fuel injector as defined by one of the foregoing claims, characterized in that a compression spring (54) is provided; and that the compression spring (54) lifts the valve member (21) from a valve seat (33) when the coil (37) has been switched to be currentless.

13. The unit fuel injector as defined by claim 12, characterized in that the compression spring (54) is braced on one end against the valve member (21) and on the other against an adjusting disk (26).

14. The unit fuel injector as defined by claim 13, characterized in that the adjusting disk (26) is replaceable.

15. A method for installing a magnet valve (5) with an armature (41) and a valve member (21), characterized by the following method steps:

- locking the valve member (21) in a receptacle (63) of a fixed installation device (61);

- mounting the magnet plate (45) and the spacer plate (57) on the receiving mandrel (41) of the valve member (21);

- pressing the magnet plate (45), spacer plate (57) and valve member (21) against the receptacle (63);

- displacing the magnet plate (45) and the spacer plate (57) by an amount A relative to the valve member (21);

- connecting the armature (41) and the receiving mandrel (43), so that the armature (41) rests on the magnet plate (45).

16. The method as defined by claim 15, characterized in that the amount A is equivalent to the sum of the valve stroke (h) and a remanent air gap between the armature (41) and the magnet plate (45).

17. The method as defined by claim 15 or 16, characterized in that a spacer ring (47) and a capsule (49) are slipped onto the magnet plate (45) and tightly welded to one another.

18. The method as defined by one of claims 15 through 17, characterized in that the compression spring (54) and the valve member (21) are inserted into the housing (17); a coil (37) of the magnet valve (5) is triggered with a current (I_{set}) that is selected such that the magnetic force exerted on the armature (41) is greater than the spring force that is exerted by the compression spring (54) on the valve member (21); recording the spring force, exerted on the valve member (21) by the compression spring (54), as a function of the position of the valve member (21) in the housing (17); evaluating the recorded spring force and travel graph; and as needed, correcting the thickness (D) of the adjusting plate (26).

19. The method as defined by claim 18, characterized in that once the initial tension of the compression spring (54) has been adjusted, function monitoring is performed, and if needed, another correction of the thickness (D) of the adjusting plate (26) is made.